10. Nate

Program Name: Nate.java **Input File: nate.dat**

Your neighbor Nate works for the city creating roads. He's recently been tasked with constructing roads to connect a bunch of towns. However, laying down roads is intense and expensive labor so Nate wants to minimize the amount of road he needs to pour. Nate has asked you to help him determine the minimum amount of road he needs to pour to connect all the towns, given the coordinates of each town.

Input: The first input line will contain a single value N ($1 \leq N \leq 1000$) denoting the number of towns that follow. The following N lines will contain two floating point values in the form X,Y ($1 \leq X, Y \leq 1000$) representing the coordinates for a town.

The distance in miles between two towns is the Euclidian distance between their coordinates.

Output: Output "`X miles of road are required.`" where `X` is the minimum amount of road Nate needs to pour to connect all the towns, rounded to 2 decimal places with commas.

Note that two towns are considered connected if there is one or more roads you can use to travel between them.

Sample input:

```
10
958.31,324.64
612.11,659.05
688.23,438.73
487.35,16.83
16.69,88.52
539.12,812.09
123.62,856.53
989.12,362.49
470.64,385.00
689.53,291.41
```

Sample output:

```
2,328.68 miles of road are required.
```